

PCMCIA-BASED POINT OF SALE TRANSACTION SYSTEM

RELATIONSHIP TO OTHER APPLICATIONS

Reference is made to co-pending U.S. application Ser. No. 08/853,955, filed May 9, 1997, entitled "Modular Signature and Data Capture System and Point of Transaction Payment and Reward System", assigned to the present assignee. Applicants incorporate said application by reference herein, which reference provides details as to signature capture and use of fingerprint capture to enhance transaction security in data-capture systems.

FIELD OF THE INVENTION

The invention relates generally to data-capture systems used to transact business, and more particularly to enabling PCMCIA-equipped generic portable computer systems including personal digital assistants ("PDA") to perform such point of sale transactions.

BACKGROUND OF THE INVENTION

Dedicated systems for facilitating point of sale transactions are known in the art, and indeed are familiar to most consumers in industrial countries. By "dedicated" it is meant that such systems are designed and intended to be used solely as point of sale transaction terminals, to be used to facilitate transactions.

Such systems are commonly used when a consumer (or user) pays for a purchase, or is to receive a credit-back, typically in conjunction with the consumer's credit card or debit card. At present, such cards bear a stripe or track of magnetic media that encodes the card owner's account information. There is a limit to the information storable on existing cards, and the industry is moving toward cards with three such stripes (or tracks). However, many prior art point of sale transaction systems cannot presently read more than two stripes of magnetically encoded information. So-called smartcards store card holder account number, account limits, or other data on an internal solid state memory that can be read or written to electronically by more modern point of sale transaction devices. Thus, the term "cards" as used hereinafter will be understood to refer to cards that store user account data, magnetically, in solid state memory, or otherwise.

With conventional credit cards, at the time of purchase or credit, the card is moved through a magnetic stripe reader, and the encoded information on the magnetic stripe is read. To promote security, the consumer typically must enter some sort of personal identification number ("PIN"), to help confirm that the consumer is indeed the authorized card owner. Entry is commonly made with a real or virtual (e.g., displayed) keypad, or more commonly pinpad, associated with the system in question. PIN information is typically not encoded on the magnetic stripe of a credit type card itself. Smartcards are temporarily plugged into a suitably equipped point of sale transaction terminal that is equipped to at least read data from such cards.

The point of sale transaction terminal is typically coupled to a host clearinghouse system that provides confirmatory information as to the account in question, security information including PIN confirmation, allowable transaction limits, and the like.

An especially useful device for facilitating point of sale transactions is the PenWare model 3000, available from PenWare of Sunnyvale, Calif. Among other modes of input,

the model 3000 provides a pressure pad upon which the user writes a signature at time of transaction. A digitized version of the signature can be coupled to the host system, whereat a known signature of the true card owner can be stored. A comparison between the stored signature and the just-written signature can be made by the host system. The host system then notifies the point of sale system whether the two signatures appear to be written by the same person.

While the various systems described can, to a greater or lesser extent, facilitate point of sale transactions, all such systems are dedicated to facilitating such transactions and serve no other purpose. Frequently such equipment is bulky, not readily transportable, and expensive. While grocery stores, department stores and other large businesses can justify the cost, space, and maintenance required for dedicated point of sale transaction terminals, smaller businesses and individuals cannot.

On the other hand, a variety of relatively inexpensive generic computing devices exist, including laptop computers and PDAs. Many of these systems are equipped to accept PCMCIA-compatible accessories, typically modems, additional memory, CD-ROM interfaces, and the like. It would be useful to many vendors to be able to use such devices as point of sale transaction systems or terminals. An individual who transacts business on weekends at a flea market or a garage sale might do more business if credit card or smart-card payments could be reliably transacted. Many such individuals already own a laptop computer or PDA device, whereas few individuals would have access to a portable dedicated portable point of sale transaction system.

Thus, there is a need for a method and mechanism by which generic computing/PDA devices can be made to perform point of sale transaction functions. Such point of sale transaction systems should be portable, small in size, inexpensive, yet perform the necessary functions required to securely transact business.

The present invention provides such a method and system to implement point of sale transaction terminals.

SUMMARY OF THE INVENTION

The present invention provides a PCMCIA-compliant generic laptop computer or personal digital assistant ("PDA") device with an add-on module that provides point of sale functionality. Essentially the module converts the device to a portable inexpensive point of sale transaction terminal.

The add-on module preferably is a self-contained unit that includes a card reader with a PCMCIA-compatible interface. A protruding snout like member of the module housing slides into the PCMCIA slot of the computer, PDA, or similar device. Software is then loaded into and/or executed by the computer or PDA. When executed by the computer or PDA, this software allows the device to read and process information read by the module.

Typically payment for a transaction is made with a credit (or other) card that includes at least one magnetic stripe carrying information as to the card holder's credit account. Such cards are read with a module having a magnetic stripe reader unit. The information is read from the magnetic stripe by moving the credit card through the magnetic stripe reader. Other transactions may involve a smartcard, in which memory internal to the card retains data. Such cards are read (and/or written to) with a module having a smartcard reader/writer unit. Thus equipped with an appropriate card reader module, the computer or PDA device becomes a portable point of sale transaction terminal.